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THE PLANT DISEASE REPORTER

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Division of Mycology and Disease Survey

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Volume XXIV Number 18

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IN THIS ISSUE

Diseases of fruits and vegetables arriving on the New York Market during the first 3 months of 1940 are reported by James S. Wiant and C. C. Bratley, page 362.

John O. Miller reports severe injury from root-knot in a Kansas peach orchard, page 365.

Wildfire again seems to be increasing in prevalence in Wisconsin, according to James Johnson, reporting results of the tobacco disease survey in Wisconsin in 1940, page 367.

E. G. Kelsheimer and Curtis May report that the elm dieback fungus has been cultured from specimens from 31 States, as well as the District of Columbia and Canada, page 369.

Anna E. Jenkins reports plantain as a new host for Sclerotium rolfsii, and some new locations for scab of violet, page 369.

Pucciniastrum ericae has been found on 3 additional species of Erica in California, according to W. W. Diehl, page 373.

Check List Revision, by Freeman Weiss, page 374.

F. H. Steinmetz reports the occurrence of ergot on wild rice in Maine, page 379.

Unusually severe attack of some corn diseases in Virginia is reported by S. B. Fenne, page 379.

Ivan H. Crowell reports a destructive occurrence of bean rust in the Laurentian Mountains of Quebec, page 379.

DISEASES OF FRUITS AND VEGETABLES ON THE NEW YORK MARKET DURING THE MONTHS OF JANUARY, FEBRUARY, AND MARCH, 1940.

James S. Wiant and C. O. Bratley

APPLE:

A several-thousand box lot of Cortland apples held in a Hudson Valley cold storage became severely scalded by the middle of January. About 50 percent of the fruits were affected. Many of the scalded areas were soft and mushy to a depth of 1/4 inch. The core areas were usually normal in appearance.

ASPARAGUS:

Considerable decay was found in California asparagus received during the general period of March 9 - 14. This asparagus had been shipped during the first several days of the month and therefore had been harvested shortly after the floods that occurred in the asparagus-producing sections during the latter days of February.

The decay was chiefly phytophthora rot (Phytophthora sp.) which usually occurred in the form of large lesions along the side of the stalks near the base. During this period occasional lots had decay ranging from 25 to 85 percent.

Both before and after the period noted above, decay in small amounts occurred rather regularly throughout the month. This was chiefly bacterial soft rot (Erwinia carotovora) which was found as a mushy decay of the tips of the spears and as a slimy mass on the cut surface of the butts.

Taking the month as a whole, of 68 carlots for which information was available (approximately 1/3 of the total market receipts), 19 had no decay present, while in 49 carlots an average of 4 percent of the stalks were affected.

Freezing injury was observed in a number of carlots. This occurred at the bottom bunker position of the car, indicating excessive use of salt in the ice bunkers. In one carlot slight freezing was found at the top center position of the car where the cold blast of air from the pre-cooling fans struck the load.

BEAN:

Lima beans received from Cuba showed an unusually large amount of scab (Elsinoë phaseoli). Russetting (physiological) constituted an important blemish. Many lots arrived in poor condition, with pods spotted by cladosporium mold (Cladosporium herbarum) and with bacterial soft rot (Erwinia carotovora) and fusarium rot (Fusarium spp.) abundant.

Snap beans were received in considerable quantity from Cuba during this period. Anthracnose (Colletotrichum lindemuthianum) was found seriously affecting many shipments.

CUCUMBER:

Throughout the 3-month period cucumbers arriving from Puerto Rico were subject to heavy losses from mycosphaerella black rot (Mycosphaerella citrullina). The amount of decay present was exceedingly variable. In some cases little rot occurred in any lots of a given boat shipment. In others many lots were affected, with few to nearly all of the cucumbers decayed.

Cottony leak (Pythium aphanidermatum and Phytophthora sp.) occurred sporadically during the first several shipments. Bacterial spot (Bacterium [Phytomonas] lachrymans) and bacterial soft rot (Erwinia carotovora) were present in small amount throughout the season.

Mycosphaerella black rot was responsible for losses of 10 to 20 percent in some large shipments of Cuban cucumbers.

GRAPEFRUIT:

Many grapefruit in shipments received from Texas shortly after the severe freeze there in late January were affected with rust-colored or brown, slightly sunken spots near the stem end of the fruit. Penicillium rots (P. digitatum and P. italicum) affected less than 1 percent of the grapefruit shipped prior to the freeze. The percentage of this decay increased to an average of about 2 percent in fruit shipped later. One boat shipment in March contained several carlot equivalents of one brand of grapefruit, some of which were shipped under refrigeration (38°F.) and some under ventilation (55° to 60°F. at arrival). The former lots contained less than 1 percent decay, whereas the latter contained 4 percent.

GRAPE:

Grapes from Argentina arrived for the most part in good condition. Certain brands were usually free from decay; others generally showed from 1 to 3 percent gray mold rot (Botrytis sp.).

POTATO:

Bacterial soft rot caused important losses in a number of carlots of Bliss Triumph potatoes from the Goulds section of Florida received between the approximate dates of February 11 to 17. Both before and after this period little decay was observed.

Late blight (Phytophthora infestans) rot in amounts of 6, 3, 3, 1, and 4 percent, respectively, was found in 5 carlots of Bliss Triumphs from the Fort Meyer (Florida) growing section arriving during the first 2 weeks of February. Less than 1 percent bacterial soft rot was present in each carlot. Six carlots received during the same general period were free from decay.

Large quantities of Nebraska-grown Bliss Triumphs were received on the New York market during the latter part of the 3-month period. For the most part these potatoes were well selected for size and appearance and arrived with practically no loss from decay.

ORANGE:

The extreme low temperatures occurring in the growing sections of Florida during the last week of January were responsible for poor arrival condition of many shipments of oranges. The first badly affected fruit arrived at New York on the fourth day after the freeze. The skin of affected oranges was flabby and easily broken. Many fruits bore glassy water-soaked spots near the stem end. These spots usually dried down to form rusty-brown depressions. The interior of the fruit was soft, mushy and watersoaked. The pulp was lighter yellow in color than normal and in many cases had an "off" flavor. In badly affected fruits the pulp was disorganized and contained open spaces among the vesicles. Buckling and twisting of the segment walls followed by drying of the juice vesicles and thickening of the rind were noted in frozen fruit not picked until several days after the freeze.

Following the freeze, stem-end rots (Diplodia natalensis and Phomopsis citri) were not as prevalent in Florida oranges on arrival at New York City as is usual for these months.

During March, penicillium rot (P. digitatum and P. italicum) affecting from 1 to 5 percent of the fruit was found in many shipments of Washington Navel oranges from California. In one boat shipment containing several thousand boxes of this fruit 5 percent was decayed.

Florida Temple oranges in a small commercial lot held in cold storage at 32°F. in New York City were practically all affected with watery breakdown at the end of 10 weeks. The fruit was dark and watersoaked and its flavor was "strong."

PEAR:

During March a number of carlots of Winter Nelis pears from the Pacific Northwest were found to contain from 2 to 5 percent of the fruit affected with blue mold rot at the stem end. Many stems on otherwise sound fruits were brown and decayed. Isolations from these stems gave a variety of organisms with Penicillium and Alternaria most frequently found.

Scald on Anjou pears from Oregon was more prevalent than usual. Little of the trouble appeared until the fruit had been placed in a warm place for ripening.

Williams pears from Argentina arrived for the most part in good condition. Several thousand boxes of the fruit were held in cold storage at New York for 2 months. At the end of that period the fruit was slightly wilted and bore many dark areas on the skin from box or liner rubs.

SPINACH:

Heterosporium leaf spot (Heterosporium variabile) was found as an important blemish of Texas spinach during the last week in February and the first 3 weeks in March. Although the disease has been found in small amounts at various times each season this is the first time since observations were begun on this market in 1931 that it has occurred in serious degree.

TOMATO:

Phytophthora rots (Phytophthora sp.) were unusually prevalent in Cuban tomatoes received during January and February.

Phoma rot (Phoma destructiva) continued to be the most important decay of tomatoes from Florida, Cuba, and Puerto Rico.

(Division of Fruit and Vegetable Crops and Diseases).

ROOT KNOT INJURY TO PEACH TREES AND OTHER PLANTS IN KANSAS

John O. Miller

Last fall a grower asked us to come out and inspect his peach orchard 6 miles south of Wichita in order to determine why the trees were not making a satisfactory growth. There were 2 peach orchards about half a mile apart. Typical trees from each orchard are shown in Figure 1-A (orchard A) and Figure 1-B (orchard B). These 2 orchards were planted with the same variety of peaches, 2 acres in each orchard, and the trees were planted March 15, 1938, in both orchards. Trees planted were 5/16 of an inch in diameter; trees were secured from the same nursery and the orchards are on the same type of soil.

Orchard A, previous to 1932, was planted to truck and vegetable crops. In the spring of 1932, the land was planted to blackberries, which were grown until the spring of 1937, when they were removed and the ground was used for vegetables. Peach trees were planted March 15, 1938.

Figure 1. Comparative growth of trees in 2 young peach orchards near Wichita, Kansas. Orchards are the same age and planted with the same variety on the same kind of soil. A, from nematode-infested orchard A (see text); B, from nematode-free orchard B. (Drawings from photographs of typical trees in each orchard).

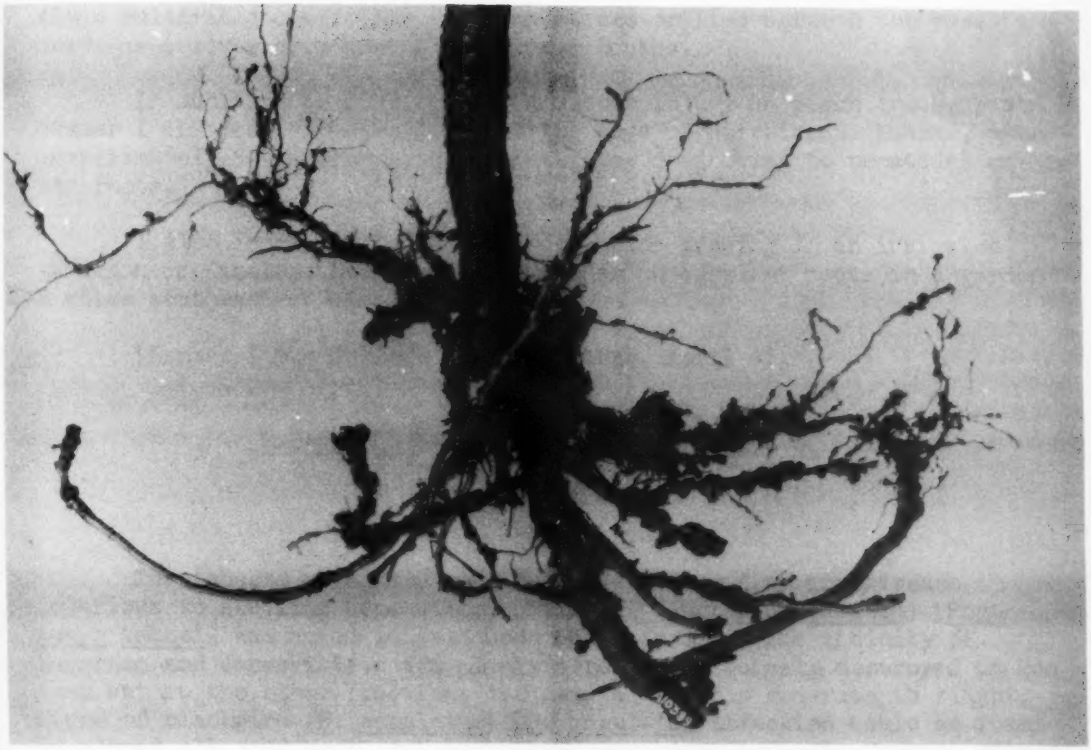


Figure 2. Nematode galls on roots of peach tree from nematode-infested orchard near Wichita, Kansas.

Tomatoes and other vegetable crops were grown between the rows in the summer of 1938. In the spring of 1939, a small amount of manure was applied to this orchard. Figure 2 shows what we found on the roots of each tree in pulling and examining a number of trees. As shown, the roots were severely attacked by nematodes [Heterodera marioni].

Orchard B, previous to 1932, was in grain crops. In 1932 it was seeded to alfalfa. In 1937 the alfalfa was plowed under and the ground summer fallowed. On March 15, 1938, the trees were planted and clean cultivation practiced the rest of the summer. In 1939 the ground was clean cultivated until fall, when wheat was drilled between the rows to serve as a cover crop during the winter months.

In addition to finding this nematode injury on peach trees, last summer I also saw a tomato patch at the edge of Hutchinson, Kansas, where approximately 50 percent of the plants were dead owing to nematodes on the roots.

I also found nematodes on garden beans growing in an irrigated garden near Kinsley, Kansas; and nematodes on eggplant roots in a garden 8 miles southeast of Wichita, Kansas.

(Kansas State College of Agriculture, April 5).

TOBACCO DISEASE SURVEY IN WISCONSIN 1940

James Johnson

The tobacco seed beds were relatively free from any disease injurious to seedling production. Wildfire (Bacterium tabacum) [Phytomonas tabaci] was noted in seed beds on 15 farms in the vicinity of Edgerton and Janesville. The plants were almost totally destroyed on one farm but at the other locations the damage was only moderate to slight. Signs of blackfire (B. angulatum) [P. angulata] infection could be found in almost all seed beds, but in no case was heavy infection noted. These observations are of interest in view of later developments in the field.

The growing season of July and August was somewhat stormy and wet, conditions which should have favored heavy field infection with both diseases. Wildfire became relatively heavy in infected fields rather early in the season, developing to a serious extent in some fields planted from seed beds inspected and sprayed weekly with Bordeaux mixture and believed to be free from seedling infection. Because of the distribution of the disease in the fields and on the plant, this epidemic was not directly traceable to watersoaking through beating rain.

Blackfire, on the other hand, was very slow in developing in the fields even after beating rains, apparently because the watersoaked condition was not retained a sufficient length of time. It was not until after an extended rainy period between August 24-30, that heavy infection with blackfire was seen in the fields. This relative behavior of the two diseases is quite explainable from what is now known about conditions favoring infection, and these observations are of particular interest because of the differences shown in response to environment by two closely related organisms, and because of the minute amount of seed bed infection apparently responsible for heavy field infection with wildfire.

The actual damage from blackfire this season may not exceed 10 percent in terms of quality, since much of the crop was harvested before or soon after the disease appeared in epidemic form. The number of farms on which wildfire, the more serious disease, is present is again however definitely on the increase as compared to a considerable decline in recent years attributable largely to dry weather.

Tobacco mosaic (virus) was common and very severe as compared, for example, to 1939. It is estimated that 10 percent of the fields showed from 50 to 100 percent infection along with extensive necrosis on the leaves. As usual in this State, the heavily infected fields had been previously grown to tobacco. Tobacco streak (virus), rarely of economic significance in the State, was less common than in 1939.

The relatively cool wet season favored black root-rot [Thielaviopsis basicola], but only a few fields were heavily stunted owing to the more general use of strains of seed resistant to the disease. The total reduction in yield from this source was probably less than 5 percent, since otherwise favorable growing weather resulted in an unusually heavy crop in the State.

Brown root-rot was severe in only a very few fields, since comparatively little tobacco is now grown after sod crops. Potash starvation was seen in small areas of several fields but was found unusually severe in only one field where heavy firing even of top leaves followed the normal symptoms. Frenching was not noted in any fields inspected.

(Division of Tobacco and Plant Nutrition).

SOIL SPECIMENS YIELDING CEPHALOSPORIUM, 1930 to 1938, by STATES

STATE	1930		1931		1932		1933		1934		1935		1936		1937		1938		TOTAL	
	Spec. cult.	No.of Ceph.	Spec. cult.	No.of Ceph.	Spec. cult.	No.of Ceph.	Spec. cult.	No.of Ceph.	Spec. cult.	No.of Ceph.	Spec. cult.	No.of Ceph.	Spec. cult.	No.of Ceph.	Spec. cult.	No.of Ceph.	Spec. cult.	No.of Ceph.	SPEC. CULT.	NO.OF CEPH.
Alabama	0	-	0	-	0	-	0	-	7	0	0	-	2	0	4	0	20	0	33	0
Arizona	0	-	0	-	0	-	0	-	0	-	0	-	0	-	4	0	0	-	4	0
Arkansas	0	-	2	0	0	-	1	0	0	-	0	-	2	0	3	0	5	2	13	2
California	0	-	2	1	0	-	0	-	3	0	0	-	0	-	0	-	0	-	5	1
Colorado	0	-	0	-	3	1	0	-	4	0	3	0	0	-	0	-	0	-	10	1
Connecticut	1	0	2	0	4	1	72	9	2015	1363	9810	7278	11705	7747	7752	3988	10898	4999	42259	25385
Delaware	0	-	0	-	0	-	4	1	5	3	4	1	13	1	1	0	5	0	32	6
Florida	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Georgia	0	-	0	-	0	-	1	0	1	0	0	-	2	0	1	0	7	0	12	0
Idaho	0	-	0	-	0	-	1	0	0	-	0	-	0	-	0	-	0	-	1	0
Illinois	5	0	19	10	5	3	10	3	18	2	215	15	425	24	79	25	40	14	816	96
Indiana	3	0	4	2	3	0	5	2	73	30	140	30	198	49	3190	702	7908	2651	11524	3466
Iowa	0	-	1	1	4	0	55	6	5	1	7	1	4	0	5	1	4	0	85	10
Kansas	0	-	0	-	2	0	2	0	4	0	0	-	0	-	1	1	3	2	12	3
Kentucky	0	-	1	0	2	0	10	1	18	1	75	7	71	10	76	8	282	19	535	46
Louisiana	0	-	0	-	0	-	5	1	5	0	13	0	12	2	1	0	1	0	37	3
Maine	1	0	2	0	0	-	25	19	10	2	18	12	5	2	2	0	0	-	63	35
Maryland	0	-	1	0	3	0	26	2	22	5	187	99	410	140	655	134	2054	220	3358	600
Massachusetts	1	0	4	1	1	0	30	9	32	9	76	14	257	91	4	0	64	50	469	174
Michigan	0	-	5	0	39	7	2	0	13	3	19	4	4	0	4	1	23	2	109	17
Minnesota	1	0	1	1	2	0	2	2	4	2	1	0	0	-	4	3	0	-	15	8
Mississippi	0	-	0	-	0	-	5	0	4	0	2	0	3	0	3	2	2	0	19	2
Missouri	0	-	5	2	0	-	12	2	8	0	103	11	462	142	10	9	5	0	605	166
Montana	0	-	1	1	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1
Nebraska	0	-	1	0	0	-	0	-	1	0	1	0	0	-	0	-	0	-	3	0
Nevada	0	-	0	-	0	-	4	0	1	0	0	-	0	-	0	-	0	-	5	0
New Hampshire	0	-	0	-	0	-	1	0	8	1	6	1	2	0	2	0	4	0	23	2
New Jersey	0	-	0	-	1	0	1464	111	7668	1269	14625	4780	27287	12761	25720	7912	42412	9816	119177	36649
New México	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
New York	0	-	10	1	29	8	314	72	6692	2310	11690	5913	17917	8788	43961	10089	26405	10050	107018	37231
North Carolina	0	-	0	-	0	-	3	0	3	0	0	-	0	-	0	-	0	-	6	0
North Dakota	0	-	0	-	0	-	4	0	4	1	1	0	0	-	0	-	0	-	9	1
Ohio	61	3	363	177	144	57	306	133	180	27	727	271	1782	640	2767	1441	5050	1775	11380	4524
Oklahoma	0	-	2	0	1	0	0	-	6	1	2	1	3	0	3	3	3	2	20	7
Oregon	0	-	0	-	0	-	0	-	1	0	0	-	1	0	0	-	0	-	2	0
Pennsylvania	2	0	16	4	4	0	47	9	67	20	46	7	373	164	1256	63	2961	308	4772	575
Rhode Island	0	-	0	-	0	-	2	0	1	0	30	2	4	0	1	1	0	-	38	3
South Carolina	0	-	0	-	0	-	0	-	1	0	2	0	0	-	0	-	0	-	3	0
South Dakota	0	-	0	-	0	-	0	-	2	0	0	-	0	-	0	-	0	-	2	0
Tennessee	0	-	1	0	0	-	6	0	10	0	43	1	22	0	10	1	96	0	188	2
Texas	0	-	1	0	1	0	2	0	5	0	0	-	5	0	1	0	0	-	15	0
Utah	6	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Vermont	0	-	0	-	0	-	2	0	6	0	3	0	3	0	5	0	0	-	19	0
Virginia	1	0	1	0	0	-	11	0	20	2	112	21	388	102	346	82	237	41	1116	248
Washington	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
West Virginia	0	-	3	0	8	0	0	-	5	0	7	2	807	40	1203	353	2424	547	4457	942
Wisconsin	0	-	4	1	6	1	4	0	15	4	6	2	8	1	5	1	11	1	59	11
Wyoming	0	-	0	-	0	-	0	-	1	0	0	-	0	-	0	-	0	-	1	0
Dist.of Columbia	1	0	10	4	7	2	8	2	7	1	11	5	34	16	105	37	100	14	283	81
Canada	0	-	0	-	0	-	1	1	1	1	0	-	0	-	1	1	1	0	4	3
States not recorded	0	-	0	-	0	-	0	-	0	-	0	-	77	0	0	-	0	-	77	0
TOTAL CEPHALOSPORIUM		3		206		80		385		5058		18478		30720		24858		30513		110301
TOTAL SPECIMENS	77		462		269		2447		16956		37985		62288		87185		101025		308694	

PREVALENCE OF ELM DIEBACK CAUSED BY DOTHIORELLA ULMI

E. G. Kelsheimer and Curtis May

Elm dieback, caused by Dothiorella ulmi Verrall and May, is widely distributed and common in many States. The table (page 369), in conjunction with two similar tables for Ceratostomella ulmi and Verticillium[1,2], indicates the relative prevalence of dieback among the wilt diseases of elms in those areas in New York, Connecticut, New Jersey, Ohio, Maryland, Pennsylvania, Indiana, and West Virginia in which scouting for the Dutch elm disease has been conducted for the past several years. The table records the presence of the disease in 31 States, the District of Columbia, and Canada.

The causal fungus was assigned to the genus Cephalosporium until its pycnidial stage was obtained. In cultures made from infected wood, the Cephalosporium stage of the fungus develops and is recognized. The disease also has been called "cephalosporium elm wilt." For these reasons the fungus is familiarly called "Ceph." by most of those working with it and it has been so designated in the tables.

(Dutch Elm Disease Eradication, Bureau of Entomology and Plant Quarantine, and Division of Forest Pathology, Bureau of Plant Industry).

UNUSUAL COLLECTIONS OF DESTRUCTIVE FUNGI ON PLANTAIN AND VIOLET IN THE DISTRICT OF COLUMBIA AREA

Anna E. Jenkins

Recent collections of pathogenic fungi producing severe infection on plantain and violet in the District of Columbia and nearby Maryland and Virginia are here reported. As will be shown, most of the records from the District of Columbia are new, and also two of the three specific localities in Maryland and the one in Virginia, for the fungus on violet.

Sclerotium rolfsii on plantain: Sclerotium rolfsii Sacc. was first described [1] on the basis of material collected in Florida by P. A. Rolfs on over 20 different hosts and sent to Saccardo by F. L. Stevens. It has since been reported on numerous additional hosts but apparently not on plantain (Plantago).

1/ Kelsheimer, E. G., L. M. Fenner, C. E. Dike, and Curtis May. Number of elm specimens cultured and percentage yielding Ceratostomella ulmi, 1930 to 1938. Plant Dis. Reporter 23: 182-183. June 15, 1939.

2/ Kelsheimer, E. G., and Curtis May. Verticillium wilt of elm. Plant Dis. Reporter 24: 282-284. August 1, 1940.

1/ Saccardo, P. Notae mycologicae Series III, Ann. Myc. 9: 257. 1911.

During the past summer the writer has been familiar with the appearance of certain heavy patches of plantain (Plantago rugelii Dcne.) on the lawn east of the Freer Art Gallery, near the Smithsonian Institution, Washington, D. C., covering the larger part of an irregular area, roughly 45 x 25 feet.

Infection by Sclerotium rolfsii was not observed on August 12. However, on August 28, during a series of warm rainy days, attention was at once attracted to a number of small areas of freshly exposed earth, previously covered by the living plantain. The first impression was that an attempt had been made to eradicate the weed by removing the plants, but closer view revealed that the plantain was dead or dying in these areas. On the moist, brown, dead plant parts were numerous white to bright sclerotia of the type of Sclerotium rolfsii. In some cases these newly formed sclerotia made a conspicuous radiating pattern as they outlined the petioles and basal parts of the leaf blades. Scapes and spikes were also affected. Infection appeared to advance outward from the crown, and the fungus may have gained entrance saprophytically through the old dead or dying leaves which had been observed on the plants before the attack of S. rolfsii. The more recently affected scapes and, on the lower surface, the basal part of leaf blades were sometimes entirely covered with the more or less felty, white, vegetative growth of the fungus. The upper surface of leaves thus affected remained green at first but later turned brown.

By August 31, the sclerotia presented a much less striking appearance, and by September 3 had mostly ripened and were inconspicuous. When the lawn was again visited on September 24 the disfiguring vacant spaces were still in evidence. In the affected area the plantain had been killed outright on about 100 small patches, usually less than a foot in diameter. The fungus was perhaps still slightly active, as a few freshly wilted plants or plant parts were seen. Several sclerotia nearly the color of the soil were found, and the light vegetative growth of the fungus was still apparent on dead plant parts.

Sphaceloma violae causing scab of violet: Sphaceloma violae Jenkins, in all cases here reported, produced severe infection on aerial parts of affected violets (Viola), whether growing wild or in home gardens. For the area concerned, in the present case including Williamsburg, Virginia, the additional records here given are supplemental to those reported in 1938 2/. The additional specimens now available are as follows:

Maryland: On wild violets, Rock Creek Park, Sept. 15, 1940, M. C. Bomhard and A. E. Jenkins; on violets in border of garden, Bethesda, Sept. 25, 1940, M. J. B. Ezekiel; Chevy Chase, on a rare violet with rose-colored flowers transplanted from Virginia, Sept. 26, 1940, W. A. Wheeler; on wild violets, Chevy Chase, J. I. Lauritzen.

2/ Jenkins, A. E. Additional records of violet scab. Plant Disease Reporter 22: 86-88. 1938.

Washington, D. C.: On violets in cultivation, near Conduit Road and River Road, Oct. 7, A. E. Jenkins, and Oct. 16, 1939, W. T. Swingle; I St., N.W., Sept. 18, 1940, A. E. Jenkins; Kalmia Road, Sept. 26, 1940, R. J. Haskell.

Virginia: Violets growing wild, vicinity of Colonial Village, Sept. 25, 1938, Harris Hunnicutt and A. E. Jenkins; Williamsburg, border of violets in garden of "Governor's Palace," May 25, 1940, A. E. Jenkins, and June 18 and 26, Mrs. Roy C. Deal.

Among the immediate localities represented violet scab had previously been observed in Maryland in Rock Creek Park[3] and at Chevy Chase[4]. There have been no previous records from the District of Columbia. In Virginia, heretofore, the disease has not been reported from Williamsburg, although the occurrence of the disease in Norfolk[5] and nearby Virginia[6] is recorded. In the garden at Williamsburg there was only a slight amount of infection on May 25, and the disease would doubtless have been passed over except by those familiar with its symptoms. By the June dates of collection, however, the disease had advanced so that its characteristic symptoms were easily recognized by the collector, who was previously unfamiliar with the disease.

In his collection of violets already referred to by Massey and Jenkins in 1935[7], Dr. Wheeler has observed that blue violets are often attacked by scab. Another violet severely affected in his garden is that known as "confederate violet," with blue veins on a light background. Doctor Wheeler reports that his collection of bird's foot violet (Viola pedata L.) assembled from several different parts of the United States (destroyed some time ago by frost) never showed the effects of scab. The susceptibility of this species to infection by the Sphaceloma, however, has been shown through artificial inoculations, as reported in the article just cited.

These additional reports of scab of violet substantiate the previous impression that this disease is more or less widely distributed in the area named, but has long been overlooked.

(Division of Mycology and Disease Survey).

3/ Loc. cit. See footnote 2.

4/ Massey, L. M., and A. E. Jenkins. Scab of violet caused by Sphaceloma. New York (Cornell) Agr. Exp. Stat., Memoir 176. 1935.

5/ Loc. cit. See footnote 4.

6/ Loc. cit. See footnotes 2 and 4.

7/ Loc. cit. See footnote 4.

HOSTS FOR PUCCINIASTRUM ERICAE IN AMERICA

W. W. Diehl

In 1934 the writer 1/ reported the identification of a rust fungus on Erica sp. from Colma, California, as Uredo ericae Naumann, known from Europe, but unknown previously from this country. The identification was later verified by Cummins 2/, who recognized this species as referable to Pucciniastrum, renaming it P. ericae; and at the same time he reported the host as Erica hyemalis.

Three specimens now identified as the same fungus recently found upon 3 different species of Erica in the Golden Gate Park Arboretum at San Francisco show a noteworthy range with respect to both host and locality. The collection records for these specimens, using the names of the Arboretum record and the numbers of the San Francisco unit of the Bureau of Entomology and Plant Quarantine, are as follows:

On E. persoluta var. rubra, Aug. 28, 1940, R. B. Schwerin (S.F.17178)

On E. angularis, Aug. 29, 1940, W. H. Wheeler and R. B. Schwerin (S.F.17179)

On E. cruenta, Aug. 29, 1940, W. H. Wheeler and R. B. Schwerin (S.F.17180)

Whether this infection is recent or of long standing, and what may be its source, are unknown. The hosts are all exotic and data as to their origin are furnished through the kindness of Mr. Eric Walther of the Golden Gate Park Arboretum. The first example, E. persoluta var. rubra, is an old planting of unknown origin; the next, E. angularis, was grown locally from seed of South African origin; and the plants of E. cruenta were imported from New Zealand in 1931. It may be significant that this fungus is as yet unknown from either South Africa or New Zealand, so that the evidence available points to an infection of long standing.

(Division of Mycology and Disease Survey).

1/ Diehl, W. W. A heath rust new to the United States. Plant Dis. Reporter 18: 126-127. 1934.

2/ Cummins, G. L. Notes on some species of Uredinales. Mycologia 27: 605-617. 1935.

CHECK LIST REVISION
(Continued)

Freeman Weiss

BETULA

BETULA spp., BIRCH. Organisms plurivorous or cosmopolitan, or host species unidentified; widely distributed except as noted.

Armillaria mellea Vahl ex Fr., mushroom root rot.
Cytospora chrysosperma Pers. ex Fr. See Valsa sordida.
C. horrida Sacc. See Valsa horrida.
Daedalea confragosa Bolt. ex Fr., D. quercina L. ex Fr., and D. unicolor Bull. ex Fr., wood rot. The latter also causes root and butt rot of living trees.
Diatrype stigma Hoffm. ex Fr. (Libertella betulina Tul.), on branches.
Fomes applanatus (Pers. ex Fr.) Gill., white mottled heart rot, root rot.
F. connatus (Weinm. ex Fr.) Gill., white spongy heart rot. Northeastern States. Mostly on B. lenta and B. lutea.
F. everhartii (Ell. & Gall.) Schrenk, yellowish flaky heart rot. Eastern and Lakes States. Mostly on B. papyrifera.
F. fomentarius (L. ex Fr.) Kickx., yellowish mottled heart rot.
F. fulvus (Scop. ex Fr.) Gill., brown heart rot. Especially on B. nigra.
F. igniarius (L. ex Fr.) Kickx. (including F. nigricans (Fr.) Gill.), white spongy heart rot.
F. pini (Brot. ex Fr.) Karst., wood rot. Idaho.
F. pinicola (Sw. ex Fr.) Cke., brown crumbly heart rot.
F. robustus Karst. (= ? F. bakeri (Murr.) Sacc. & Trott.), wood rot. Pa.
Gloeosporium betularum Ell. & Martin, leaf spot.
Hymenochaete agglutinans Ell., trunk canker. Mich., Pa.
Lenzites betulina L. ex Fr., wood rot. Widespread in U.S., including Alaska.
Libertella betulina Desm., on branches.
Melampsoridium betulinum (Pers.) Kleb., leaf rust (II & III). New England to Pacific Northwest, C and I on Larix laricina.
Melanconis stilbostoma (Fr.) Tul. (conidial stage: Melanconium betulinum Schm. & Kze. ex Fr. = M. bicolor Nees. ex Fr., also M. zonatum Ell. & Ev.), on twigs & branches, possibly causing die-back. Northeastern States.
Merulius tremellosus Schrad. ex Fr., wood rot.
Microsphaera alni (DC.) Wint., powdery mildew.
Nectria spp., especially N. cinnabarina Tode ex Fr., twig canker and die-back or sapr., N. coccinea Pers. ex Fr., trunk canker; also N. ditissima Tul., and N. galligena Bres., trunk canker. Northeastern States.

BETULA spp. -- Continued.

Phyllactinea corylea Pers. ex Karst., powdery mildew.
Physalospora obtusa (Schw.) Cke., on branches, probably sapr. Ga.
Polyporus adustus Willd. ex Fr., wood rot.
P. albellus Pk., wood rot. Northern U.S.A. and Alaska.
P. betulinus Bull ex Fr., powdery sapwood rot, brown rot. General on B. papyrifera (including var. occidentalis), B. populifolia, B. lenta, B. lutea, B. neoalaskana; not on B. fontinalis or B. nigra.
P. cinnabarinus Jacq. ex Fr., wood rot.
P. gilvus (Schw.) Fr., wood rot, occasionally on living trees.
P. hirsutus Wulf. ex Fr., sapwood & occasionally heart rot.
P. hispidus Bull. ex Fr., white spongy heart rot. New England.
P. radiatus Sow. ex Fr., wood rot. Alaska, Ohio, Mo.
P. resinosus Schrad. ex Fr., wood rot. Alaska, Minn.
P. sanguineus L. ex Fr., wood rot. Ind.
P. squamosus Huds. ex Fr., wound rot.
P. tulipiferus (Schw.) Overh., wood rot. Northeastern States.
P. underwoodii Pk., on roots. N. Y.
P. versicolor L. ex Fr., sapwood rot, sometimes on living trees.
Schizophyllum commune Fr., wound rot.
Solenia ochracea Hoffm. ex Fr., S. poriiformis (Pers. ex Fr.) Fckl., bark patch.
Sphaeropsis conglobata Sacc., twig canker. Ohio.
Steganosporium muricatum Bon. (Coryneum irregulare Berk. & Curt.), on branches, probably sapr. Eastern and Southeastern States.
Stereum fasciatum Schw. ex Fr., wood rot.
S. hirsutum Willd. ex Fr., wood rot.
S. purpureum Pers. ex Fr., heart rot.
Valsa horrida Nit. (Cytospora horrida), on twigs & branches, ? die-back. Northeastern States.
V. sordida Nit. (Cytospora chrysosperma), on branches, probably sapr. Western States.
Venturia ditricha (Fr.) Karst. (Fusicladium betulae Aderh.), on fallen leaves. Me., N.Y., Alaska.

(BETULA ALBA L.), EUROPEAN WHITE BIRCH. See B. PENDULA.

BETULA FONTINALIS Sarg., RED BIRCH. Growth Regions 4,7,8,9,12,13,14,15.

Euryachora betulina (Fr.) Schroet. (Dothidella betulina Sacc.), on fallen leaves. N. Mex.
Phyllactinea corylea Pers. ex Karst., powdery mildew.
Septoria boycei Dearn., leaf spot. Oreg.
S. betulicola Pk., leaf spot. Oreg.

BETULA GLANDULOSA Michx., BOG BIRCH. Growth Regions 2,4,12,13,15,23, 24,26.

Melampsoridium betulinum (Pers.) Kleb., rust (II, III). Ida., Mont., Wash.
Taphrina bacteriosperma Johans., leaf & twig deformity. Reported in N. America without locality.

BETULA KENAICA Evans, KENAI BIRCH. Alaska.

Melampsoridium betulinum (Pers.) Kleb., rust (II, III). Alaska.
Polyporus radiatus Sow. ex Fr., wood rot. Alaska.
Taphrina sp., leaf blister. Alaska.

BETULA LENTA L., SWEET BIRCH. Growth Regions 22,24,25,26,27,28,29.

Dermatea molliuscula (Schw.) Cash, on bark. Pa.
Gloeosporium betularum Ell. & Martin, leaf spot. Ill., N.J., Pa.
Melanconis acrocystis (Pk.) Ell. & Ev., on branches. N.J., N.Y.
M. stilbostoma (Fr.) Tul., on branches. Miss.
Microsphaera alni Wallr. ex Wint., powdery mildew. N.H., Pa.
Mycosphaerella punctiformis (Pers. ex Fr.) Schroet., on leaves. N.Y.
Nectria coccinea Pers. ex Fr., trunk canker. Conn., N.Y.
Phoradendron flavescens (Pursh) Nutt., mistletoe. Ind.
Phyllactinia corylea Pers. ex Karst., powdery mildew. N.Y., Va.
Phyllosticta betulae Ell. & Ev., leaf spot. N.Y.
Sacidium microspermum (Pk.) J. J. Davis, leaf spot. N.Y., Pa., W.Va.
Septoria betulae Lib. & West, S. betulicola Pk. (= ? S. betulina Pass.), leaf spot. Pa., Vt.
Erinose. Leaf deformity caused by mites. Pa.

BETULA LUTEA Michx., YELLOW BIRCH. Growth Regions 21,22,23,24,25,26, 27,28.

Aleurodiscus oakesii (Berk. & Curt.) Cke., bark patch. Vt.
Daedalea unicolor Bull. ex Fr., butt rot. Vt.
Dermatea molliuscula (Schw.) Cash, on bark. Mich., N.Y.
Gloeosporium betulae - luteae Sacc. & Dearn., on leaves. N.Y.
Haplosporella lutea (Dearn. & House) Petr. & Syd., on branches. N.Y.
Libertella betulina Desm., on branches. Vt., W.Va.
Melampsoridium betulinum (Pers.) Kleb., rust (II, III). New England, Ind.
Melanconis stilbostoma (Fr.) Tul., on branches. N.Y.
Melogramma melogramma (Bull. ex Fr.) House, on dead branches. N.Y.
Microsphaera alni Wallr. ex Wint., powdery mildew. Mass.
Mycosphaerella punctiformis (Pers. ex Fr.) Schroet., on leaves. N.Y.
Nectria coccinea Pers. ex Fr., trunk canker. Mich., N.Y.
Phyllactinia corylea Pers. ex Karst., powdery mildew.
Scleroderris seriata (Fr.) Rehm (Gelatinosporium betulinum Pk.), on branches. N.Y., Pa.
Septoria betulicola Pk., leaf spot. N.Y.
Taphrina sp., leaf blister. Me.

BETULA NANA L., DWARF BIRCH. Alaska.

Taphrina bacteriosperma Johans., leaf curl. Reported in N. America without locality.
T. flava Farl., yellow leaf blister. Alaska.

BETULA NEOALASKANA Sarg., ALASKA WHITE BIRCH. Yukon River Valley.

Diaporthe decedens (Fr.) Fckl., on twigs. Alaska.
Fomes spp., especially F. igniarius. Cf. list under Betula spp.
Melanconis stilbostoma (Fr.) Tul., on branches. Alaska.
Polyporus spp. Cf. list under Betula spp.
P. resinosus Schrad. ex Fr. Alaska.
Prosthemium betulinum Kze., on twigs. Alaska.

BETULA NIGRA L., RIVER BIRCH. Growth Regions 20,22,23,25,26,27,28,29.

Cladosporium caducum J. J. Davis, leaf spot. Wis.
Coryneum disciforme ellipticum Berk. & Br. Ala.
Cytospora betulina Ehrh. ex Fr., on twigs. W.Va.
Fomes fulvus (Scop. ex Fr.) Gill., brown heart rot. Ark., Mo.
Gloeosporium betularum Ell. & Martin, leaf spot. Widespread.
Nectria ditissima Tul., N. galligena Bres., trunk canker. Conn. to Pa.
Pezizella lythri (Desm.) Shear & Dodge, on twigs. N. Car.
Phoradendron flavescens Nutt., mistletoe. Ind.
Phyllactinea corylea Pers. ex Karst., powdery mildew. Ill., Mo., Wis.
Sclerotinia betulae Wor., on seeds. Md.
Steganosporium muricatum Bon., on branches. Ala., W. Va.
Stereum sericeum (Schw.) Sacc., wood rot. N.C.

BETULA PAPYRIFERA Marsh., PAPER BIRCH (including the varieties cordifolia (Regal) Fern., minor (Tuckerm.) Fern., montanensis (Butler) Sarg., occidentalis (Hook.) Sarg.,and subcordata (Rydb.) Sarg.). Growth Regions 1,2,12,13,15,18,21,22,23,24,26,27.

Cryptospora betulae Tul. (Cryptosporium betulinum Jaap), on twigs. N.Y.
Cylindrosporium betulae J. J. Davis, leaf spot. Del., Wis.
Daedalea unicolor Bull. ex Fr., butt rot. Vt.
Gloeosporium betularum Ell. & Martin, leaf spot. Wis.
G. betulae-papyriferae Dearn. & Overh., on leaves. Pa.
Gnomonia campylostyla Auer., on leaves. Colo.
Leptothyrium betulae Fckl., on leaves. N.Y., Wis.
Libertella betulina Desm., on branches. Mich., Vt.
Melampsoridium betulina (Pers.) Kleb., leaf rust (II, III). Widespread.
Melanconis decoraensis Ell., on twigs. Iowa, Mass., N.Y.
M. stilbostoma (Fr.) Tul., on twigs & branches. Widespread.

BETULA PAPYRIFERA -- Continued.

Nectria coccinea Pers. ex Fr. and N. galligena Bres., trunk canker. New England to Mich.
Phyllactinia corylea Pers. ex Karst., powdery mildew. Iowa, Vt., Wis.
Phytophthora cambivora (Petri) Buis., root rot. Md.
Sacidium microspermum (Pk.) J. J. Davis, on leaves. Wis.
Septoria betulae (Lib.) West., S. betulina Pass., leaf spot. Iowa, Wis.
S. betulicola Pk., leaf spot. Oreg., Wash.
Sphaeropsis betulae Cke., var. foliicola J. J. Davis, on leaves, Wis.
Taphrina bacteriosperma Johans., leaf curl. N.H.
T. betulina Rostr., witches'-broom. Wis.
T. flava Farl., yellow leaf blister. Widespread.

BETULA PENDULA Roth. (B. ALBA L. in part), EUROPEAN BIRCH. This species is the source of most of the horticultural varieties -- cut-leafed, pendulous, purple-leafed, etc., in cult. in America.

Haplosporella alnicola (Pk.) Petr. & Syd., on branches. N.Y.
Melanconis stilbostoma (Fr.) Tul. and M. decoraensis Ell., on branches, die-back. Mass. to Ind.
Phyllosticta betulina Sacc. (pycnidial stage of Mycosphaerella maculiformis?), leaf spot. N.Y.
Phytophthora cambivora (Petri) Buis., root rot. Md.
Prosthemium betulinum Kze., on branches. Mass.
Taphrina flava Farl., yellow leaf blister. Northeastern States.

BETULA POPULIFOLIA Marsh., GRAY BIRCH. Growth Regions 24,26,27,28.

Cylindrosporium betulae J. J. Davis, leaf spot. Wis.
Cytospora betulina Ehrh. and C. horrida Sacc., on twigs & branches. Mass., N. Y.
Haplosporella lutea (Cke.) Petr. & Syd., on branches. N.Y.
Libertella betulina Desm., on bark. Me.
Melampsoridium betulinum (Pers.) Kleb., leaf rust (II, III). Northeastern States.
(Melanconiella subviridis (Pk.) Dearn. & House): Melanconis decoraensis.
Melanconis stilbostoma (Fr.) Tul., on branches. Me., N.Y.
Nectria coccinea Pers. ex Fr., trunk canker. Widespread.
Phyllactinea corylea Pers. ex Karst., powdery mildew. N.Y.
Septoria betulicola Pk., leaf spot. Vt.
Taphrina flava Farl., yellow leaf blister. Widespread.
Venturia ditricha (Fr.) Karst., on leaves. Me., N. Y.

BETULA PUMILA L., SWAMP BIRCH. Growth Regions 18,21,22,23,24,26,27.

Euryachora betulina (Fr.) Schroet., on leaves. Wis.
Melampsoridium betulinum (Pers.) Diet., leaf rust (II, III). Mass. to Minn.
Microsphaera alni (DC.) Wint., powdery mildew. Mich., Wis.
Septoria betulae (Lib.) West., leaf spot. Wis.

(Division of Mycology and Disease Survey).

BRIEF NOTES ON PLANT DISEASES

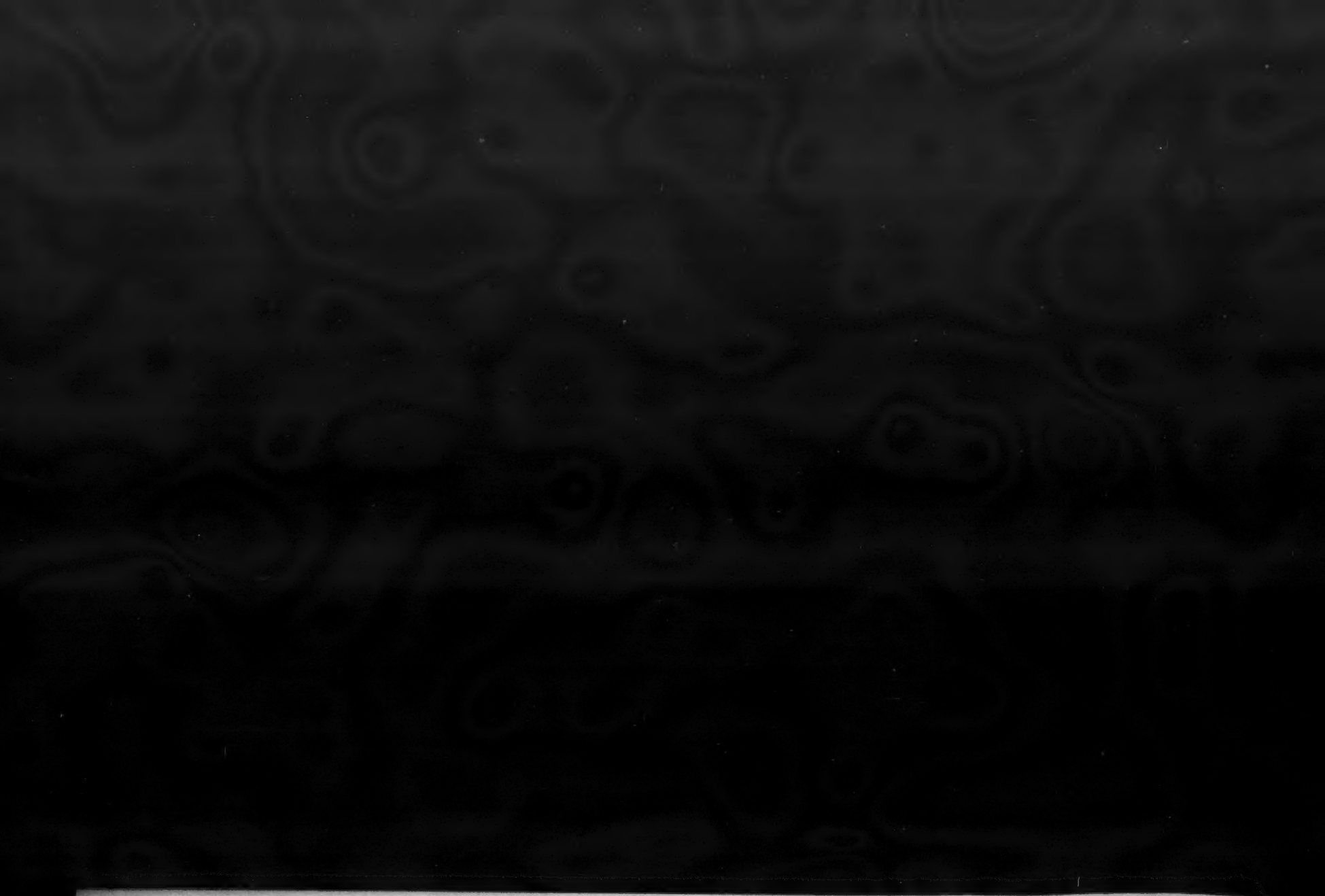
ERGOT ON WILD RICE IN MAINE: Ergot (Claviceps sp.) is general on wild rice (Zizania aquatica var. angustifolia Hitchc.) in the Penobscot River from Orono to Mattawamkeag. Infection varies in severity, being worst in coves and drift areas, although it also occurs on plants in the current of the river. Probably 1/2 to 1 percent would be a fair estimate. One panicle was found with 10 sclerotia.(F. H. Steinmetz, University of Maine).

CORN DISEASES IN VIRGINIA: Stripe, Helminthosporium turcicum, has been unusually severe on corn this season. This is the second year in succession that this disease has caused severe damage. Almost every corn field showed evidence of stripe, the leaves being damaged before the grain was mature, which undoubtedly reduced the yield to some extent.

Rust, Puccinia sorghi, was observed in the mountain counties. In some cases the tip end of the leaves was completely dried up.

Anthracnose, Colletotrichum graminicola, caused heavy infection on corn in some areas of the State. Certain hybrids seemed to be more severely affected than others.

The exceedingly wet season during August undoubtedly was responsible for much of the leaf spotting occurring on corn in Virginia this year. (S. B. Fenne, Extension Plant Pathologist. Sept. 26).

BEAN RUST IN THE LAURENTIAN MOUNTAINS OF QUEBEC: Bean rust, Uromyces phaseoli var. typica Arthur, has been reported from Canada, but so far as I am aware all stations are in the southernmost portion. Farther south in the United States and Mexico this rust is fairly common. Last year specimens of bean rust on Kentucky Wonder beans were sent to me from Arundel, Arguentil County, Quebec, about 60 miles north of Montreal in the Laurentian Mountains. A note stated that what seemed to be the same fungus was seen for the first time the previous season, but

that it was not nearly so destructive as in 1939. It was suggested that the owner plant some of the same variety of bean the following year. The 1940 plants were so heavily infected that the crop was a complete failure. This sequence is of especial interest when it is revealed that the garden in which the disease occurred was a small plot, adjacent to a summer cottage, cut a few years previously from virgin woodland. (Ivan H. Crowell, Department of Plant Pathology, McGill University, Macdonald College, Quebec).